

REMARKS

The Office Action of April 11, 2006 has been carefully studied. The claims in the case are now 1-20 with claim 20 being added. No claim has yet to be allowed. The following paragraphs correspond to the order of the paragraphs of the Office Action:

Drawings

Attached are replacement sheets for Figs. 1 and 2 showing the arrowhead pointed in the right direction. (The Examiner is thanked for noting the error.)

Specification

Page 11, 4th line from the bottom is now corrected. Applicants appreciate the thorough review of the specification by the Examiner. However, there is a major translation flaw in the claims of the preliminary amendment where the word "refined" should have been --raffinate-- in all instances so as to be in compliance with the original claims, specification and the drawing. The claims, abstract and specification are now corrected accordingly. (The application was originally filed in the French language except for the last page before the claims. The term "raffinat" should be translated as --raffinate-- not refined. A copy is attached of page 369 "A French-English Dictionary for Chemists" by Patterson, 2d edition, Wiley & Sons, N.Y. 1954.

Also, it is seen that the claims are amended so as to remove "preferably" clauses which should be the subject of separate claims, if desired. More importantly, in claim 1, the claim is amended to point out that it is the distilled raffinate product containing metaxylene, orthoxylene and ethylbenzene which is subjected to a step of dehydrogenation and which is performed in a manner in which at least 50% by weight of the ethylbenzene is converted into styrene. This effluent from the dehydrogenation is then subjected to separation steps to eliminate byproducts and to result in a mixture containing mostly styrene, ethylbenzene, metaxylene and orthoxylene. Consequently, it is clear that the step of dehydrogenating the ethylbenzene in the intermediate mixture which contains metaxylene and orthoxylene as well, is not a complete dehydrogenation of the intermediate mixture. The many advantages of Applicants' invention are listed on pages 12 and 13 of the specification.

Claim Rejections - 35 U.S.C. 103

The claims are rejected under 35 U.S.C. 103 as being unpatentable over Magne-Drisch et al. (U.S. 6,369,287) in view of Lee (U.S. 3,306,942). Applicants have studied these references and in view of Applicants correction of the word "refined" to "raffinate", it is believed clear that Applicants' invention is not suggested by the references.

In particular, the Magne-Drisch et al. reference which incidentally is owned by the present Assignee, the celebrated French petroleum research organization, Institut Francais du Petrole, and has one common inventor Mr. Alain Methivier, obtains from the simulated moving bed system an essentially pure ethylbenzene (column 3, line 2) and a separate fraction containing orthoxylene and metaxylene. It is understood that this essentially pure ethylbenzene in the Magne-Drisch et al. reference is converted into styrene. However, Applicants' process does not obtain a pure ethylbenzene from the simulated moving bed, but instead a distilled raffinate which is a mixed intermediate product containing orthoxylene and metaxylene as well as ethylbenzene.

It is this intermediate product which is then subjected to dehydrogenation in order to produce styrene, and then the styrene is recovered in a series of separation steps. Consequently, the concept of the present invention is significantly and unobviously different from the system set forth in the Magne-Drisch et al. reference. (It is understandable that the Examiner thought differently upon reviewing the original claim 1 because the term "raffinat" was incorrectly translated as "refined".)

As an additional point of departure, Applicants' recycle of stream 23b to the first absorption stage (column 6) after an isomerization step (zone 24) is not found in the references. Whereas it is stated in the Office Action on page 7 that stream 23b comprises styrene, it is respectfully pointed out that Tables 1 and 2 in Applicants' specification indicate that styrene is not present.

As for the teachings of Lee, it is clear that this reference would not suggest a major change in the Magne-Drisch et al. system so as to arrive at Applicants' invention.

Inasmuch as claim 1 appears to be patentable on its face, Applicants will not burden the record with a discussion of the dependent claims of record, but reserve the right to comment on

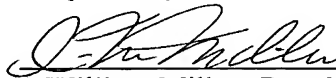
same at a later date if ever necessary. For the record, Applicants do not necessarily acquiesce to any of the statements set forth in the Office Action regarding Applicants' dependent claims.

In view of this amendment which provides a new abstract, replacement drawings, amendments to the specification and claims, and a discussion of the clear unobviousness of Applicants' invention, favorable reconsideration is courteously requested. However, if there are any remaining issues which can be expeditiously resolved by a telephone conference, the Examiner is courteously invited to telephone Counsel at the number indicated below.

If the presently submitted claims do not sufficiently comport with the originally filed English translation of the French claims, Counsel would appreciate advice as to corrective action that can be taken.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



I. William Millen, Reg. No. 19,544
Attorney/Agent for Applicant(s)

MILLEN, WHITE, ZELANO
& BRANIGAN, P.C.
Arlington Courthouse Plaza 1, Suite 1400
2200 Clarendon Boulevard
Arlington, Virginia 22201
Telephone: (703) 243-6333
Facsimile: (703) 243-6410
Attorney Docket No.: PET-2102

Date: July 11, 2006
IWM:pdv

A FRENCH-ENGLISH
DICTIONARY
FOR
CHEMISTS

BY

The Late AUSTIN M. PATTERSON
Professor Emeritus of Chemistry, Antioch College

SECOND EDITION

BEST AVAILABLE COPY

JOHN WILEY & SONS, INC.
NEW YORK LONDON

radeau, *m.* raft.
 radiable, *a.* radiable. *m.* a soapmaker's tool.
 radiaire, *a.* radiate, radiated.
 radialement, *adv.* radially.
 radiance, *f.* radiance, radiation.
 radiateur, *m.* radiator. *a.* radiating.
 radiation, *f.* radiation; erasure, striking out.
 radical, *m.* & *a.* radical. — *composé*, compound radical. — *hydrocarboné*, hydrocarbon radical. — *libre*, free radical.
 radicalement, *adv.* radically.
 radicaux, *pl.* of radical.
 radicelle, *f.* rootlet.
 radicule, *f.* (*Bot.*) radicle.
 radié, *a.* radiated, radiate, radial.
 radier, *v.t.* radiate; erase, strike off. *v.i.* radiate. *m.* frame, apron, floor, bed; strengthening (of masonry or concrete).
 radieux, *a.* radiant.
 radifère, *a.* radiferous, containing radium.
 radio-actif, *a.* radioactive.
 radioactiver, *v.t.* render radioactive.
 radio-activité, *f.* radioactivity.
 radio-diffusion, -*émission*, *f.* broadcasting.
 radiographie, *f.* radiography; radiograph.
 radiographier, *v.t.* radiograph.
 radiographique, *a.* radiographic(al).
 radiolaire, *m.* (*Zoöl.*) radiolarian.
 radiologie, *f.* radiology.
 radiomètre, *m.* radiometer.
 radiométrie, *f.* radiometry.
 radiométrique, *a.* radiometric.
 radioplomb, *m.* radiollead.
 radiorécepteur, *m.* radio (receiving) set.
 radioscope, *f.* radioscapy.
 radioscopique, *a.* radioscopic(al).
 radiotechnique, *f.* radio engineering.
 radiotellure, *m.* radiotellurium (polonium).
 radiothérapie, *f.* radiotherapy.
 radiothérapique, *a.* radiotherapeutic.
 radis, *m.* radish. — *de cheval*, horseradish. — *oléifère*, Chinese radish.
 radiumiser, *v.t.* treat with radium; coat with radioactive luminous paint.
 radoub, *m.* working over, repairing; calking.
 radoubier, *v.t.* (*Exptl.*) work over, remanufacture; repair, refit (vessels); calk.
 radoucir, *v.t.* soften, render mild; (*Metal.*) anneal. *v.r.* soften, grow mild.
 raffermir, *v.t.* harden, make harder or firmer; strengthen, improve.
 raffermissement, *m.* hardening, making firmer; strengthening, improvement.
 raffinade, *f.* refined sugar.
 raffinage, *m.* refining; refinery.
 raffinat, *m.* raffinate.

raffiné, *p.a.* refined; (of cheese) ripened. *m.* (*Paper*) pulp, stuff (ready for the paper-making machine); refined sugar.
 raffinement, *m.* refinement.
 raffiner, *v.t.* refine. *v.r.* be refined.
 raffinerie, *f.* refinery; refining.
 raffineur, *m.* refiner; (*Paper*) = raffineuse. *a.* refining. — *d'alcool*, spirit rectifier.
 raffineuse, *f.* (*Paper*) refining engine, beating engine.
 raffinode, *n.* first-grade refined sugar.
 raffûter, *v.t.* resharpen.
 rafle, *f.* stalk (of grapes); cob (of maize); carrying off.
 rafier, *v.t.* carry off, carry away.
 rafieux, *a.* rough, uneven.
 rafraichir, *v.t.* cool; refresh; renew, renovate, restore, freshen; trim; thin (mortar); sharpen (as a saw); refine (metals); alloy (copper with excess of lead). *v.r.* cool, become cool; be refreshed. *v.i.* cool, grow cool.
 rafraichissant, *p.a.* cooling, etc. (see *rafraichir*). *m.* (*Med.*) refrigerant.
 rafraichissement, *m.* cooling, etc. (see *rafraichir*); refreshment; (*Med.*) refrigerant.
 rafraichissolr, rafraichisseur, *m.* cooler; refrigerator; (*Sugar*) crystallizer.
 rage, *f.* rage, madness; (*Med.*) rabies.
 raide, *a.* stiff; rigid; tight, taut; steep; inflexible. *adv.* quickly, promptly.
 raideur, *f.* stiffness, etc. (see *raide*).
 raidir, *v.t.* stiffen; tighten, make taut, stretch. *v.r.* stiffen; bear up, offer resistance. *v.i.* stiffen.
 raidissement, *m.* stiffening, etc. (see *raidir*).
 raie, *f.* line (as of a spectrum); scratch; stroke; stripe; streak; groove; furrow; ray (the fish).
 ralfort, *m.* horseradish (*Armoracia rusticana*). — *cultivé*, a kind of winter radish. — *sauvage*, horseradish.
 rainer, *v.t.* groove; slot; score; flute.
 rainure, *f.* groove; slot; channel, furrow.
 rainurer, *v.t.* groove, slot, channel.
 rais, *m.* spoke.
 raisin, *m.* grape, grapes. *grain de* —, grape. *grappe de* —, bunch of grapes. *pepin de* —, grape seed, grapestone. — *d'Amérique*, pokeweed, poke. — *de Corinthe*, dried currant. — *de cuve*, wine grape. — *de loup*, black nightshade. — *de table*, = raisin sec. — *d'ours*, bearberry (*Arctostaphylos uva-ursi*). — *sec*, dried grape, raisin.
 raison, *f.* reason; ratio; (firm) name; satisfaction, reparation; (*Law*) claim. *à* — *de*, at the rate of, at the price of. *avoir*

BEST AVAILABLE COPY